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UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/734,849	12/13/2000	Kazuya Koyama	070639/0133	4741

22428 7590 02/18/2005	EXAMINER
FOLEY AND LARDNER	SHRADER, LAWRENCE J

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WASHINGTON, DC 20007

ART UNIT	PAPER NUMBER
2124	

DATE MAILED: 02/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _28 December 2004_.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-36_ is/are pending in the application.

    4a) Of the above claim(s) _2,3,7,8,14-16,18,19,27,28,31, and 32_ is/are withdrawn from consideration.

5) ☒ Claim(s) _17, 20-25, 35, 38; 26,29,30,33,34, and 36_ is/are allowed.

6) ☐ Claim(s) _1,4-6,9-13 and 37_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All   b) ☐ Some *   c) ☐ None of:

      1. ☒ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

DETAILED ACTION

1.   This office action is in response to the amendment filed by the Applicant on 4/21/2004.

2.   Claims 2, 3, 7 8, 14 – 16; 18, 19; 27, 28, 31, and 32 have been cancelled. Claims 1, 4 – 6,

9 – 13, and 37 remain rejected.

3.   The Applicant's arguments have been fully considered, but were not persuasive.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1, 5, 6, 9 – 13, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Davidson et al., U.S. Patent 6,042,614 (admitted prior art, hereinafter referred to as

Davidson), in view of Lysik et al., U.S. Patent 5,754,785 (hereinafter referred to as Lysik).

In regard to claim 1:

"A distributed debugger system, which debugs a distributed system which is configured by a program run on plural computers, comprising:

a program manager for executing a management from a predetermined computer to other computers via a network interconnecting said plural computers, said management being related to the setting status and execution status of a debug object program executed on each of said plural computers."

Davidson discloses a distributed debugger system, configured to run on a plurality of computers (Abstract) employing a program manager (column 7, line 65 to column 8, line 8) executing from a predetermined computer to other computers via a network (column 4, line 66 to column 5, line 1), wherein the management relates to setting status and execution status of the debug program (column 8, lines 11 – 36). These functions run on multiple clients with multiple servers (e.g., see Figure 7; column 8, lines 57 – 67; column 9, line 65 to column 10, line 12)

"...wherein said program manager comprises:

at least one of controllers for receiving instructions from a user;"

Davidson discloses a debugger tool with a user interface (column 7, line 65 to column 8, line 11).

"at least one of executors connected to said debug object program;"

See Davidson column 8, lines 12 – 27.

"each of said controllers including a setting-status manager for managing the setting of each of debuggers constructing said distributed debugger system and communication means for communicating with other controllers or said executors;"

Davidson discloses a means to set status and a means to communicate with other controllers (column , line 65 to column 8, line 20; column 11, line52 to column 12, line 24).

"each of said executors including a setting-status manager for managing the setting of each of debuggers constructing said distributed debugger system and communication means for communicating with other controllers or executors;"

The Davidson sets breakpoints in the debuggers (column 8, lines 12 – 48; column

12, lines 16 – 20).

"*said setting-status manager changing its setting content when a change in setting is instructed, and then notifying a setting-status manager in other of said controllers or said executors of the changed content using said communication means, while said setting status manager changes its setting content in response to notification;*"

See Davidson column 12, lines 16 – 19.

"*wherein said distributed system to be debugged is debugged using the same setting on all computers in which said distributed debugger operates.*"

See Davidson column 12, lines 16 – 19.

each of said controllers including an execution-status manager for managing an execution status of each of debuggers constructing said distributed debugger system;

See Davidson column 8, lines 9 – 20 wherein the dbx engine allows

communication to determine execution status.

each of said executors including said execution-status manager for managing the execution status of said debugger, and a process manager for managing a debug object program;

See Davidson column 8, lines 2 – 20.

wherein said execution-status manager changes its setting content when being instructed to change the execution status; said communication means notifies said execution-status manager in other controller or execution-status manager of the changed content upon occurrence of a temporary halt status due to detecting of breakpoint; and said execution-status manager changes its status in response to the notification and instructs said process manager to instruct a change of operation; wherein the same execution status is maintained on all computers on which said distributed debugger system operates."

In the Davidson invention, when the target program crashes the variables and set-

points are read and notification sent to the dbx engines (column 8, lines 37, column 9,

line 65 to column 10, line 12). Notification of temporary breakpoints are disclosed at

column 8, lines 9 – 48. Davidson does not explicitly disclose that the notification is sent to and maintained on all computers in the distributed debugger system. However, Lysik discloses a simultaneous software update to nodes in a communications network (See end of Abstract; column 1, line 62 to column 2, line 4). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the notification capability to update the dbx engines as taught by Davidson with the well known feature of simultaneously updating software information in multiple nodes as taught by Lysik, because one would be motivated to distribute the variable and breakpoint information to all nodes running a thread in a distributed system in order to synchronize the system.

In regard to claim 5, incorporating the rejection of claim 1:

"...wherein said program manager and said debug object manager are realized on the same distributed system construction foundation and wherein said program manager uses a communication function provided by said distributed system construction foundation."

Davidson teaches a communication function provided by the debugger and the underlying CORBA system (column 8, line 57 – column 9, line 4).

In regard to claim 6, incorporating the rejection of claim 1:

"...wherein said program manager comprises:

said setting-status manager for holding as a setting status a debug object program activation method;

Davidson teaches that the debugging system operates at the object code level (column 8, lines 15 – 25).

> *a remote debugger activator for activating said executor on a remote computer;*

See Davidson column 10, lines 13 – 34.

> *a user interface for interpreting a debug object program from a user and a specification of an execution start place thereof;*

See Davidson column 8, lines 9 – 20 for the user interface, and column 10, lines

13 – 20 for the start specification.

> *said user interface receiving a specification of said debug object program from said user and then notifying said setting-status manager of the specification;*

See Davidson column 8, lines 25 for notification of status.

> *said user interface receiving the specification of said execution start place of said debug object program from said user and instructing said executor specified by said remote debugger activator to activate said executor;*

The dbx engine reads information as needed (column 8, lines 12 – 27).

> *said remote debugger activator activating said executor on a specified computer;*

See Davidson column 10, lines 1 – 6.

> *said user interface instructs said activated executor to start the execution of said debug object program;*

See Davidson column 12, lines 16 – 19.

> *said process manager in said executor instructed acquiring information about a debug object program held in said setting-status manager to start execution of said debug object program;*

See Davidson column 12, lines 16 – 19.

> *wherein execution of a debug object program is started on a computer different from the computer operated by said user."*

See Davidson column 12, lines 16 – 19.

In regard to claim 9, incorporating the rejection of claim 1:

"...*wherein said program manager and said debug object manager are realized on the same distributed system construction foundation and wherein program manager uses a communication function provided by said distributed system construction foundation.*"

Davidson teaches a communication function provided by the debugger and the

underlying CORBA system (column 8, line 57 – column 9, line 4).

In regard to claim 10, incorporating the rejection of claim 1:

"...*wherein said program manager interprets a request for changing the status of a debug object program, from a user, and instructs said execution-status manager to change the status.*"

See Davidson column 8, lines 1 – 20; column 10, lines 1 – 6.

In regard to claim 11, incorporating the rejection of claim 10:

"...*wherein said program manager and said debug object manager are realized on the same distributed system construction foundation and wherein program manager uses a communication function provided by said distributed system construction foundation.*"

Davidson teaches a communication function provided by the debugger and the

underlying CORBA system (column 8, line 57 – column 9, line 4).

In regard to claim 12, incorporating the rejection of claim 1:

"...*wherein said process manager in said executor within said program manager changes its operation according to the operation of a debug object program and changes the status of said execution-status manager within the same executor based on the changed content.*"

See Davidson column 10, lines 13 – 23.

In regard to claim 13, incorporating the rejection of claim 12:

> *"...wherein said program manager and said debug object manager are realized on the same distributed system construction foundation and wherein program manager uses a communication function provided by said distributed system construction foundation."*

Davidson teaches a communication function provided by the debugger and the

underlying CORBA system (column 8, line 57 – column 9, line 4).

In regard to claim 37, incorporating the rejection of claim 1:

> *"...wherein the setting-status manager of said executor only notifies all other computers in which said distributed debugger operates of the change in setting only when the change in setting originated at a same computer on which said executor operates."*

Davidson discloses the client dbx engine notifying other dbx engines in the

distributed system of the change setting on the client server (column 13, lines 6 – 43).

6.   Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Davidson et al.,

U.S. Patent 6,042,614 in view of Lysik et al., U.S. Patent 5,754,785, as applied to claim 1 above,

further in view of the SPARCworks "Sun Product Documentation."

In regard to claim 4, incorporating the rejection of claim 1:

> *"...wherein:*

> *each of said controllers including a user interface for interpreting a request for displaying the status of a debug object program from a user and displaying the results, and place decision means for specifying one or more existence places in the status specified based on the nature of the status when the status of a debug object program is specified and based on the execution status of a debug object program acquired from said process manager;*

See the GUI interface in Davidson e.g., column 8, lines 9 – 20, Figure 9, also the

ability to communicate with all dbx engines in the system (column 10 lines 1 – 6).

*each of executors including a process manager for managing a debug object
program;*

See Davidson Figure 9.

*said user interface inquiring said place decision means in response to a request
for displaying the status of a debug object program from a user and then acquiring one
or more existence places of the status and transmitting a status capture request to said
process managers at all existence places via said communication means;*

The user interfacing with the GUI is able to determine statuses and locations of

the status (column 10, lines 1 – 6).

*said process manager checking the execution status of a debug object program
under management in response to a status capture request and transmitting results to
said user interface at the request source; said user interface receiving one or more
results and then outputting said results in a batch mode to said user, whereby said user
acquires the status of a distributed system to be objected, without recognizing its
existence place."*

Davidson teaches checking execution status and transmitting the results to the

user interface (column 8, lines 9 – 31; column 10, lines 1 – 6), but neither Davidson nor

Lysik teaches outputting results to a batch file. However, the SPARCworks Sun Product

Documentation , page 3 discloses collection of data commands in batch jobs. Therefore,

it would have been obvious to one skilled in the art at the time the invention was made to

use the batch collection function of the modified SPARCworkstation used in the

Davidson invention as described in the SPARCworks documentation so that the user has

the ability to analyze data offline.

Allowable Subject Matter

Prior art of record, taken either singly and/or in combination, does not teach or disclose a method as recited in independent claim 17 and a recording medium as recited in independent claim 26 with the following features:

Notifying distributed debuggers via a communication over a network of an instruction only when said instruction has <u>not</u> come via the network, but has come from a same one of computers that the debugger operates on, and;

Instructing a debugger on another computer to change the execution status via communications sent over the network when the status change is instructed due to a change of the management of the debug object program.

Thus all remaining dependent claims 20 – 25, 35, 38; 29, 30, 33, 34, and 36 are also allowed.

Response to Arguments

7.   Applicant's arguments filed 12/28/2004 with regard to claims 1, 2, and 3 – 7 are moot in view of the new applied art.

Conclusion

8.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Lawrence Shrader whose telephone number is (703) 305-8046.

The examiner can normally be reached on M-F 08:00-16:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Kakali Chaki can be reached on (703) 305-9662. The fax phone number for the

organization where this application or proceeding is assigned is (703) 746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is (703) 305-3900.

Lawrence Shrader
Examiner
Art Unit 2124

February 16, 2005

ANIL KHATRI
PRIMARY EXAMINER